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*ANKYLOSTOMIASIS.

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Ankylostomiasis or Uncinariasis or Hook-worm disease is a subacute or chronic pathological condition characterized by symptoms caused by the presence, in the intestinal canal, of the worm ankylostoma duodenale, and Uncinariasis duodenalis or Uncinaria Americana. As intimated above the American hook-worm is not quite the same as that organism found in foreign countries. For our own worm Stiles has suggested the name, Necator Americana.

Historical—How long Uncinariasis has existed no one knows, but there is every evidence to believe that it is a very old disease. In 1838, Dubina of Milan, Italy found Uncinariasis in the intestine of a girl who had died of a progressive anemia. In 1851, Griesinger declared this worm to be the cause of Egyptian chlorosis. But the clinical importance of the parasite was not recognized until 1882, when Perroncito showed that the epidemic of the so called Miner's Anemia which occurred during the building of the St. Gothard tunnel was due to this parasite. Then in 1894, there was an extensive epidemic among the miners of Belgium, the infection having been brought in by

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the Italian miners who had worked on the St. Gothard tunnel. The history of the ravages of this disease in Porto Rico, being responsible for one out of every four deaths, is too recent to need detailing here. But since the American occupation of Porto Rico, this disease has been thoroughly studied by American physicians especially Drs. Stiles, Ashford and King. This work led to the recognition of the prevalence of Uncinariasis in the southern United States, which has resulted in the extensive and comprehensive investigation of the subject in the south, generously aided by Mr. John D. Rockefeller. We now know that approximately two million people in the south are rendered inefficient and more or less public charges through the agency of this disease.

DISTRIBUTION—The disease is endemic in Italy, Egypt, India, Philippines, Germany, Belgium, Switzerland and in Cornwall, England. In our country it is found throughout the southeastern and gulf states and in New Mexico, Arizona and California. The prevalence of this disease in the south may be emphasized by stating that Chamberlin in the examination of a number of southern recruits found sixty per cent infected with hookworm. Later Siler found ninety-three cases out of a hundred and five recruits or 88.5 per cent. Chamberlin, in a statistical study of uncinariasis states that from 65 to 85 per cent of all southern bred recruits are infected with hook-worm. Wells is authority for the statement that "Exclusive of the large towns, about 24 per cent of the total white population of Georgia have uncinariasis. In Arizona and New Mexico the distribution of the disease is found to follow the railroads, being brought in, no doubt, by the Mexican section hands. In California the disease is limited to, but very prevalent in the deep gold mines, the infection originating from Italian, Polish, Hungarian and other foreign miners. Uncinariasis is also found sporadically in different coal mines throughout the United States, being imported by foreign miners, especially those from Cornwall, which is a veritable hot bed of infection.

ETIOLOGY—The direct cause of Ankylostomiasis is infection by the larvae of Ankylostoma Duodenale or Uncinariasis Americana respectively. As these two worms are practically identical they will hereafter be considered as one. This parasite belongs to the family Strongilidae of the nematoid worms. The length of the female is from 8 to 18 mim. and the width about 1 mim. The male is from 6 to 10 mim. in length and 0.5 mim. in width. Its body is threadlike with a conical shaped head and a large bell-shaped mouth surrounded by a horny capsule, and possessing four hook like teeth, ventrally situated, and two smaller vertical teeth on the dorsal side by means of which the animal fixes itself to the mucous membrane. A bulbous like swelling exists at the tail end of the female worm. It inhabits the jejunum and duodenum.

The eggs are found in muddy water, or in warm moist earth, and there liberate the embryos. These develop into larvae which soon enter the dormant state, remaining so until taken into the human stomach through drinking water, food, dirty hands, et cetera, or by the indirect route, which is more common. The usual mode of infection is through the skin of the body, especially of the feet. The so-called Ground Itch or sub-tropical Dermatitis is said to be the local manifestation of the entrance of these parasites into the body.

XUM

From the skin the larvae enter the blood stream, and are carried to the lungs, whence they pass into the air-vesicles, then to the bronchus, trachea and esophagus, where they are swallowed, thus reaching the alimentary canal. Here sexual characters develop into the parasites, reproduction ensues and the ova are deposited in the bowels. They do not, however, multiply in the intestinal tract.

Predisposing Causes—(a) Geographical distribution as given above. (b) Sex—male and female are affected alike. (c) Age—Uncinariasis is confined mainly to persons between 5 and 27 years, the greatest infection occurring between the age of 6 and 16 inclusive. (d) Going barefooted or with feet poorly clad, and uncleanly habits greatly predispose to this disease.

PATHOLOGY—(a) At point of entrance—as the chief though not entire infection is through the skin of the feet, the lesion commonly known as ground itch will be described. This consists of a dermatitis, followed by an eruption of vesicles, which frequently beome infected with various bacteria, producing pustules and ulcers of varying depth which may persist for a long time, and which when healed usually leave discolorations.

(b) In the intestines the Ankylostoma is probably nourished by the plasma of the blood, which it sucks from the vessels in the intestine walls. It is found post-mortem occasionally, in the mucous or even the sub-mucous coat rolled up in a little blood cavity. The writer recently saw a section of jejunum with several necators firmly imbedded in the walls thereof. Ecchymoses, containing little central holes, through which the blood oozes, may be seen, the result of the worm's actions. A chronic enteritis of the catarrhal type, with its typical pathology is a usual concomitant condition.

(c) General-Anemia with its resultant pathology, enlarged heart, hemic murmurs, et cetera, is the most characteristic blood picture seen. The anemia results not only from the loss of blood, sucked by the parasites, but also from a hemolysis of the blood, caused by toxins absorbed from the bodies of the unwelcome guest. Eosinophilia is always present, ranging from five to forty per cent. This of course we find in practically all parasitic diseases. The egg of the worm, about 1-500 inch in diameter, may be recovered from the stools, and occasionally the adult worm.

SYMPTOMATOLOGY—Dock and Bass in their exhaustive treatise on hook-worm disease, state that "There is probably no disease in which the symptoms are so variable as in hook-worm disease." These authors classify cases of uncinariasis according to the percentage of hemoglobin present, using four divisions, as follows:

Very mild—those with over 80 per cent hemoglobin.

Mild—those with 80 to 60 per cent.

Severe—those with 60 to 30 per cent.

Very severe—those with less than 30 per cent.

Ashford and King use only three divisions in describing these cases, viz.: slight, moderate and severe. This seems sufficient in view of the fact that a great many of the very mild cases can hardly be said to have hook-worm disease, but are really only hook-worm carriers. The latter classification I shall therefore follow.

Slight Cases—These are the cases for which the patients get the credit for merely being lazy or no account, and probably include a larger part of the so-called "poor white trash" of the south. They show a mild degree of anemia, or possibly a peculiar dirty yellow tinge of the skin, and in negroes, a pastiness. All writers agree that the normal amount of perspiration is diminished. The gastro intestinal symptoms are variable and slight, including a capricious appetite, more or less ill defined epigastric pains, and an inclination toward gaseous distention. We find a tendency toward breathlessness, tacchycardia and dizziness. There is a headache, diminution in power of concentration, and possibly a general dulling of the mental faculties. The muscles are flabby, and weakness and physical incapacity are prominent. The hemoglobin ranges from 60 per cent to normal.

Moderate Cases—These cases show a marked exaggeration of all the symptoms enumerated above. The skin is very dry, with little or no perspiration. The appetite may be ravenous and perversions are common, especially the much talked of and formerly misconstrued habit of clay eating. (geophagy). We have nausea and vomiting, with more or less marked abdominal pain. The pulse is rapid and weak and cardiac hypertrophy and hemic murmurs are common. There is pain in the chest and a feeling of weakness in the limbs and joints. Ashford and king state that "Joint pains are so common as to lead to frequent diagnosis of rheumatism." There is much dizziness, tinnitus aurium, and severe pains in the head, and a marked mental depression, simulating melancholia. Needless to say, these patients are sick people, and physical incapacitation is almost complete. The hemoglobin ranges from 60 to 30 per cent.

Marked Cases—These cases are totally incapacitated if not bedfast. Edema of the extremities is present, and possible general anasarca. The gastro intestinal and circulatory symptoms are distressing. These cases include the worst forms of geophagy. Pot-belly of the worst kind is seen, and emaciation is extreme. The head and joint pains often lead to the use of large amounts of opiates, which increase constipation and mental apathy. Dilation of the pupil, and indistinct vision are common. There may be an irregular fever, and the muscular weakness amounts almost to a paralysis. Death invariably follows this stage in a few weeks or months, unless treatment is instituted.

Diagnosis.—This can frequently be made at sight, or from a general symptomatology, but the positive diagnosis can only be made by examination of the foeces. A history of typical "Ground Itch" is presumptive indication of hook-worm and an eosinophilia should lead one to suspicion the condition.

XUM

An absolutely positive diagnosis, however, requires simply finding the eggs or the worms in the foeces. This may be done by simple microscopic examination or by centrifugalizing and examining the centrifugate, or by hatching the eggs in an incubator. Bruns regards the first method the simplest, but least delicate, the culture method the most delicate but inconvenient, and the method of Teleman, (Centrifuge) standing midway between. For ordinary purposes, the microscopic method suffices. A small mass of foecal material, preferably from a formed stool, is placed on the center of the slide and diluted with a few drops of water, a thin cloudy smear is thus made. With a low power magnification the egg can be made out as large oval or ellipsoid bodies from 50 to 75 microns long and a little more than half as wide, with a distinct clear space between the chitinous shell and the protoplasm. A number of slides may need to be examined before the eggs are found.

PROGNOSIS—This is usually good if proper treatment is instituted, and reinfection prevented. Cures of cases almost moribund have been reported.

Prophylaxis—This is highly important, but very difficult, for obvious reasons. This includes the cure of hook-worm carriers, proper sewage disposal, disinfection of infected areas (almost impossible) and protection against infection by clothing and especially sound footwear.

Treatment.—In the main, four remedies are advocated by various authorities, and they are in the order of their importance (efficiency and safety) thymol, beta-napthol, male fern (aspidium), and eucalyptus and chloroform combined. But as thymol, properly administered, accomplishes all that can be desired, and is the safest of the quartet, we need look no further for a hook-worm remedy. But as emphasized by Shultz, more than drugs are needed to stamp out this disease. The Germans use male fern very largely for hook-worm disease, Bruns reporting 40,000 cases so treated, and with five cases of blindness. But in America thymol is a heavy-odd favorite. Ashford and King's table of dosage (thymol) now almost universally adopted, is as follows:

Under 5 years old in size, 7 1-2 grains.

5-10 years old in size, 15 grains.

10-15 years old in size, 30 grains.

15-20 years old in size, 45 grains.

20-60 years old, 60 grains.

Over 60 years old, 45 grains.

Notice that size or apparent age is the criterion used. Extreme debility may also modify the dosage.

The medicinal treatment should be preceded by one day of liquid diet, and a thorough saline purge the night before, sodium sulphate one ounce being the favorite. Starting early in the morning the thymol is given in cap-

XUM

sules or wafers, in three portions, one hour apart. Two hours following the last dose another saline purge is given. Until the saline purge has acted, nothing but water, and only a small amount of that should be taken, as it promotes absorption of the thymol. Castor oil, alcholic beverages or any other thymol solvent should be strictly avoided for obvious reasons. This treatment should be repeated once or twice at week intervals, until the hookworms are completely eradicated. Sunday is a very convenient day for administering the treatment. The thymol treatment should be followed by tonics, iron, arsenic, etc., and a good hygienic and dietetic regimen.

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A PLEA FOR THE RADICAL OPERATION IN HERNIA WITH LOCAL ANESTHESIA.

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Abdominal hernia is more frequent than appendicitis and excluding tuberculosis, it claims more victims than any other disease that afflicts man. It is estimated that one out of every ten to twenty individuals has a hernia of some form, usually inguinal. A person with hernia is barred from all branches of the government service as well as the police and fire departments. It is fair to assume that the man with a hernia is equally unfitted to give his family the care they have a right to demand.

The German government claims that the earning capacity of such individuals is reduced from fifteen to fifty per cent, depending on the location, size and degree of control with a truss. Many life insurance companies refuse to assure hernia subjects, others reject unless the hernia is small and easily held by a truss. Even then his life expectancy is shortened, earning capacity lessened and his usefulness to his family and the community diminished. The irritation, annoyance and physical discomfort caused by the truss is very pronounced, especially during the summer months, and at times is sufficient to seriously impair the patient's health. Patients often remark that they were unable to do a full day's work until the hernia was cured by an operation.

Jacobson says that a number of patients supposed to have been cured by a truss in infancy have a return of their trouble in adolescence, or early manhood. Macready, surgeon to the London Truss Society, states that under twelve months fifty-eight per cent of congenital hernia are cured with a truss, from one to five years ten per cent of cures occur and after five years no permanent cures are obtained with a truss. Marey says there are four hundred and fifty thousand trusses made in Philadelphia every year.

A hernia that gives little trouble during youth may become a source of serious annoyance and danger later in life. If the pressure of the truss has been firm, both peritoneal adhesions and a gradual increase in size of the abdominal opening usually occurs. It is always difficult to adjust a truss to the fat subject so it will hold the hernia and at the same time afford comfort to the aptient. Patients with hernia are always conscious of their weakness and disability; the discomfort and the realization that the truss is merely a temporary means of relief and will not cure the hernia, tends to

XUM

cause despondency and constant worry and they often become easy prey for the charlatan and quack. Besides offering no prospect for a permanent cure, it is not unusual for the individual to be confronted by the necessity for a radical cure in later years. Strangulation is most frequent between forty and fifty. Pain of varying intensity may be present in the lower abdomen for some time before a hernia is recognized. Indigestion, backache, fatigue on the slightest exertion, general impairment of the health, constipation and intestinal colic are symptoms frequently accompanying hernia and improperly ascribed to other causes by the patient. Heredity, traumatism and laborious occupations are the more frequent predisposing causes of hernia. Kingdon claims hereditary predisposition is present in thirty-four per cent of all cases. Lucas-Championniere believes excessive fat formation is a frequent cause of umbilical hernia. Hernia is three times more frequent in males than in females.

Even after an apparent cure with a truss, the truss must be worn for months before it is safe to discard it. The radical operation practically assures a cure in every case within two weeks, is without danger when done under local anesthesia and is one of the most successful operations in surgery.

Russell of Melbourne believes that practically every inguinal hernia, a majority of the femoral and many of the direct hernia, are due to a preformed sac or an obliterated portion of the processus vaginalis.

Coley and Russell advocate abandoning the words "congenital" and "acquired" as being incorrect and substituting the terms total or partial funicular sacs in oblique inguinal hernia, as they are practically all present at birth.

Coley says: "The term 'congenital sac' as ordinarily used, means a sac communicating with the tunica vaginalis. Hence, the sacs of all inguinal hernia in female children, even though they existed at birth, and all sacs in male children not communicating with the tunica vaginalis, are called acquired. According to this definition many sacs of unquestionably pre-natal origin are classed as acquired. In direct and femoral hernia the sacs are in the majority of cases acquired, although in a certain number of cases it has been proven that preformed or congenital sacs are found also in these types of hernia."

Hernia in children are usually enteroceles and should strangulation occur the outlook is always grave. Very small hernia are liable to strangulation by the entrance of one or more additional knuckles of gut into the sac.

While hernia in adults are usually epiploceles, we have no means of knowing how soon a given case will contain both omentum and intestine, because the majority of hernia are epiploceles, is the only reason strangulation does not more frequently occur. In irreducible omental hernia where there is an occasional descent of small intestine the prognosis is always grave, there is constant danger of a loop of bowel becoming strangulated at the neck of the sac.

Regardless of how well a truss fits, there is an ever present danger of strangulation in any hernia at any time should the truss slip while the individual engages in any form of active exercise or exertion that increases intra-abdominal pressure.

Certain diseases predispose to hernia, favor the occurrence of strangulation and unless corrected at the time of operation invite recurrence, namely, bronchitis, whooping cough, stricture, phimosis, prostatic hypertrophy, cough and constipation.

Eccles says: "The radical operation for inguinal hernia is now well established, has a very low death rate, is very highly successful, and renders a large number of the members of a community fit to take their place as useful citizens."

At the best a truss is always irksome, tends to form adhesions rendering a later operation difficult, consequently, recurrence is more frequent where a truss has been worn for a long period previous to operation.

The high percentage of recurrences that followed hernia operations before the advent of the Halsted and Bassini operations caused the radical treatment to very properly fall into disrepute. With an aseptic technic and the complete removal of the sac and the suturing of the muscular and fascia layers separately, the percentage of cures incerased tremendously, in the hands of experienced operators and with aseptic healing of the wound, nearly every hernia can be permanently cured.

Deaver writes: "If hernia in a child is not cured within a year by a truss, operation should be resorted to. It is not advisable to order trusses among the children of the poor; too often, in such cases the wearing of a truss offers a false sense of security against accidents, such as strangulaion, and the hope that a truss will cure these hernias often proves futile. Since the operation practically has no mortality, and the results are so good, radical operation is justifiable, and this wholly irrespective of the age. In large serotal hernia the ues of a truss is never advisable because the operation is not serious and the results are perfect and permanent."

Evans says a simple removal of the sac, if thoroughly carried out, is all that is needed to prevent recurrence of hernia in children. Gibbon states that in operating for hernia on the right side the appendix can, as a rule, be removed easily, and in children especially is it good practice.

The interval operation is always the operation of choice besides assuring the patient against recurrence. No matter how carefully applied, taxis of a strangulated hernia is never without danger of rupturing the intestine. It is probable that this accident occasionally occurs without the knowledge of the physician, and the resulting peritonitis ascribed to another cause. Rupture has been known to occur from taxis even with a sound intestine. The only safe and sure treatment in the presence of strangulation is to do the radical operation under local anesthesia.

XUM

Sulton states that in 7,419 cases collected from the German clinics there was an operative mortality of only one-half of one per cent. Coley has reported 1,185 cases operated on by the Bassini method with only six recurrences. Sixty-five per cent of the recurrences occur during the first six months and eighty per cent of the recurrences occur during the first six months and eighty per cent within the first year.

The dangers of the injection treatment of hernia can not be too strongly emphasized. Parrafin is the material most frequently employed. Practically always the hernia recurs a few days or weeks after the injection treatment, should the hernia not reappear it is usually only a question of time until the hard masses of paraffin will suppurate or cause so much pain and inconvenience that their removal is required. The paraffin is gradually replaced by a firm mass of scar tissue which has a tendency to undergo malignant change. After the injection treatment has been used the radical operation is more difficult and recurrence more frequent than in uncomplicated cases. Charlatans and quacks are earnest advocates of the injection method of treatment and cases are recorded where they have made the injection into the femoral artery, resulting in gangrene of the extremity and a hip-joint amputation. When it is healized that a skillful operator has to exercise care to avoid injuring the femoral artery it is surprising that this accident does not occur more frequently.

The sac should always be completely removed, and when cut properly, the stump disappears from sight by the elasticity of the peritoneum. The removal of mesenteric fat in stout subjects will diminish intra-abdominal pressure and lessen relapses.

Do not use a truss after operation, it has a tendency to cause thinning and atrophy of the newly formed scar tissue and thus favors recurrence when the truss is discarded. In cases where the hernia is very large and the closure of the opening difficult, the use of an elastic support or bandage is often recommended for two or three months.

Of the causes of recurrence, septic infection is undoubtedly the most frequent. Coley says that with the use of rubber gloves and the greatest possible care in carrying out an aseptic technic he obtains 98 1-2 per cent of aseptic healing of wounds.

The careful preservation of the nerves in the treatment of hernia is an important, though neglected, factor in securing primary union and preventing recurrence. The inclusion of nerves, even the minute ones, in the suture might lead to paresis of the muscles innervated by them, and thus explain the occasional recurrence in certain cases that heal by primary union.

Of the several methods devised for the radical cure of inguinal hernia, I believe the best method to be Bodine's modification of the Halsted operation. The cord is not transplanted except in very large or recurrent hernia. Transplantation does not add to the difficulty of the operation under local anesthesia. The patient is out of bed in ten to fourteen days.

XUM

Coley states that the mortality under general anesthesia is not more than one-fourth to one-half per cent and the percentage of permanent cures in the hands of skilled operators is 95 per cent or more.

Extreme old age, organic disease of the heart, lungs and kidneys were formerly taught to be contra-indications to the radical operation. With the perfect technic of Bodine there is practically no contra-indication to the radical cure of every case, because with cocaine anesthesia there is no mortality. In over twenty-five hundred major operations at the New York Polyclinic Hospital under cocaine anesthesia there has not been a single death.

Local anesthesia removes the danger of ether pneumonia and renal insufficiency, every step in the operation is done with cocaine that is carried out with general narcosis.

Local anesthesia is applicable to all forms of hernia, while the radical cure of inguinal hernia is the most successful operation in the entire field of cocaine anesthesia. In inguinal hernia a general anesthetic is never indicated. In strangulation the lowered vitality and shock make cocaine a necessity to eliminate the additional shock of general narcosis, besides it allows ample time to ascertain the viability of the gut, and if resection is necessary, the radical operation can be performed without jeopardizing the life of the patient. Under general anesthesia it is often only possible to establish a fistula at the first operation and at a subsequent period to do an anastomosis and the radical operation.

Dewitt says many patients are induced to submit to a cure who would not do so with general narcosis, and the anesthesia mortality is removed.

A neuritis will usually follow the inclusion of the smaller nerves in a suture, it persists until the suture is absorbed or the nerve degenerates. The inclusion of the ilio-inguinal or ilio-hypogastric will in addition, be followed by a thinning and atrophy of the muscles supplied and partial anesthesia of the skin—this favors both suppuration and recurrence.

The nervous, frightened patient is the one that suffers most under general anesthesia and for that reason alone, an effort should always be made to employ cocaine. Bodine has said, so long as cocaine fulfills all the requirements of the ideal local anesthetic, it is waste of time to experiment with others of doubtful value.

A one-fifth per cent cocaine solution is employed for the skin and nerve trunks; elsewhere a one-tenth per cent solution in used. One-quarter to one grain of cocaine is all that is required for the most difficult herniotomy. Untoward or poisonous symptoms have never been observed when the weak solutions are employed. The weaker the solution, the greater the amount of cocaine that can be injected without producing toxic symptoms.

As a rule, all patients should receive a dose of morphine (from one-quarter to one-sixteenth grain) one hour before operation. This allays any restlessness or nervousness that may be present and takes the edge off of

XUM

any pain, actual or imaginary, the patient may experience during the operation, besides lessening psychic shock and absolutely preventing toxic effects in patients with an idiosyncrasy for cocaine or any other active alkaloid. The addition of hyoscine to the preliminary dose of morphine makes it possible to complete hernia operations under local anesthesia that have heretofore been regarded as only suited to general narcosis, as large umbilical and ventral hernia.

The administration of an intestinal antiseptic preceding the operation and while the patient is confined to his bed will materially add to his comfort by preventing the formation of gas, as well as the rare occurrence of acute dilation of the stomach, this latter complication, however, is more frequently observed following general than local anesthesia.

The successful use of local anesthesia depends on patience, an intimate knowledge of sensory nerve distribution, and special training in the method. The technic of the injection is always delicate, it varies with each region, each operation and in each patient. The technic must be learned with a knowledge of its adaptation to each individual case. Upon the strength of the solution depends the rapidity, intensity and duration of the anesthesia. Because of the slower appearance of analgesia with the weaker solutions, surgeons who begin operating as soon as the injecion is completed will often fail with local anesthesia.

The absence of nausea, vomiting, shock and less post-operative pain than follows general narcosis, contribute to the patient's comfort. Sharp dissection, a careful preservation of the nerves with gentleness in handling the tissues assure a prompt repair by primary union and reduce the liability of recurrence to a minimum.

Bodine writes: "Modern surgery advises a patient with inguinal hernia to submit to operation, but the majority of patients accept a truss and their hernia instead. The two or three millions of ruptured individuals in the United States rejecting this surgical advise constitute a defeat for surgery in its application to the people, for the surgical proposition of today advances over 95 per cent of permanent cures in adults, short detention from business and an exceedingly small danger to life. The removal of a personal deformity, restoration to full earning capacity and relief from an actual menace to life would seem desirable, but the number of trusses worn attests colossal rejection. Further curtailment of hospital detention is impossible, new methods of closing the canal to increase the percentage of permanent cures is improbable, and danger to life will always reside in a general anesthetic. Cerebral narcosis, with its small but certain danger to life and with its other disagreeable features probably presents to the patient the most deterrent factor to accepting a surgical operation for the cure of a hernia. It is, then, to the amendment of this last feature that surgery must look if the ruptured are to be attracted. It is solely upon anatomical grounds that the operation of inguinal hernia lends itself to local anesthesia. General anes-

XUM

thesia should only be employed in cases where local anesthesia is absolutely contra-indicated."

When for any reason local anesthesia can not be used, the patient should receive nitrous oxide and oxygen, the safest of all general anesthetics.

I have never seen a patient who has had an operation for hernia with cocaine anesthesia that regretted the selection of the method, or in double hernia, one who would consent to general anesthesia for the second operation. It is not at all unusual for a patient to fall asleep during the latter part of a single or double hernia operation, especially where the sac is very adherent and the dissection necessarily slow and tedious.

Local anesthesia adds to the comfort and safety of the young and robust, while in old age, shock, hemorrhage, pulmonic, cardiac and nephritic lesions cocaine is absolutely indicated and its use urgently demanded.

Children and nervous patients are not the most favorable subjects, but this factor alone is not sufficient to exclude local anesthesia. Although it requires more time to gain their confidence and much care to maintain it, when they are finally convinced that the method is painless and you will not allow them to feel the slightest pain, they usually become model patients. I have employed cocaine anesthesia in removing the deep cervical glands in a girl of seven and in another case for appendectomy in a girl eight years old. The patients' hands wre not held during the operation and neither complained of pain at any time during the procedure.

XUM

THE CURE OF OPIUM AND MORPHINE ADDICTS.

Dr. W. E. Rammel, Bartlesville, Oklahoma.

It is with great reluctance I address you and give my experience along the above indicated line. My only apology is the thousands suffering from the opium habit and the great difficulty in relieving them of the same. My intention can only be humane and if my claims are extravagant, all I ask is a fair trial of this treatment to convince you. I have contemplated giving this treatment to the medical profession for some time, but fear of being misunderstood as to the seriousness of my claims has deterred me. I believe every physician should give freely of his knowledge and experience to the profession and especially if it may be of great benefit to mankind.

What greater curse than to find one has fallen a victim to the morphine habit! What greater sorrow or disastrous outlook can befall than to find the father, mother, son or daughter has become addicted to this alluring, fascinating, tyrannizing curse!

These victims are helpless and, as it were, bound hand and foot; powerless within themselves to cope with the condition. It ruins them financially; lowers their vitality; undermines their intellectual power; dissipates their honor; and robs them of all their finer feelings towards self, home, and society; finally, casting them upon a shoreless sea—lost!

Can one think of a more humane act than to give to these sufferers easy, efficient relief! They cannot but enlist our sympathy although their condition and habit is loathsome to us. They know they cannot resist the drug. They know the excruciating pain, depression, nervousness and horrors attendant to such a course and the thought of it makes them tremble with fear.

It is not the intent of this paper to describe the individual suffering the patients endure when the drug is taken slowly or suddenly away from them, as every physician has had more or less experience along this line. Let it suffice to say that a morphine addict, or at least many of them, will really die if the drug is taken suddenly away from them. Therefore, when we come to understand that these sufferers cannot stop the drug without assistance and we find we are able to render that assistance in a reliable, efficient and scientific manner wih assurance of success, then it may be said, we have done much for humanity.

In the treatment I am going to give you, the patient can be treated without suffering or danger and a cure can be promised in the shortest possible time.

Precautions:

If the drug taken is gum opium or other insoluble forms, discontinue the

insoluble form and put them on the soluble form for several days before beginning treatment. The reason for this is apparent as the insoluble form leaves a coating on the wall of the stomach and bowel containing active principles of the drug, thus necessitating a longer time for its elimination.

If there is any organic lesion of the heart or kidneys, such cases should be watched carefully during treatment.

Preparation of the patient:

At bedtime the night before treatment is to be instituted, allow the patient to take his usual and final dose of the drug. Impress him with the fact that he must not secrete any of the drug as he can have it any time by the asking. Assure him he will not be allowed to suffer. Be sure to obtain all the drug and outfit before beginning treatment as an additional dose will prolong the treatment. Distrust any cases that have been treated by the gradual withdrawal method as they are sure to secrete the drug in remembrance of past experience. Do not undertake to treat a case without having a special nurse, and if possible, confine the patient in a hospital.

Treatment:

Let the patient go as long as possible next morning provided he does not suffer. Ten or twelve hours from this last dose the night before is long enough. Start the treatment about nine or ten o'clock a. m. by giving 1-300 grain hyoscine hydrobromate hypodermically in the arm. Repeat the dose in twenty minutes, increasing the amount to 1-150 grain dose. This usually brings on a mild form of delirium. If delirium is not present in an hour after the third dose, repeat, giving 1-75 of a grain; continue with this dose every hour until delirium is present. As a rule, these extra large doses are not necessary. The object to be attained is to produce a mild form of delirium and maintain it by a judicious administration of the drug, both as to size of dose and as to interval.

As a rule young persons require more of the drug than older persons. Some may require 1-150 grain every hour.

Delirium:

A noisy delirium coming on some time after treatment has begun is a sign treatment is being pushed too much. Stop the treatment and wait for rational symptoms and then begin with a smaller dose. If delirium does not come on as the treatment progresses, gradually withdraw the treatment and watch for withdrawal symptoms. If none occur do not push the treatment to produce delirium as the patient is probably saturated with the drug and practically cured.

Dangers:

Its principal danger is paralysis of the pneumogastric nerve, thus causing great depression of the heart and respiration and finally paralysis of both. An overdose early in the treatment before the system becomes saturated with the

drug may produce profound sleep. Later in the treatment, large doses produce wild delirium; the patient becoming violent and ungovernable. Should this occur, stop the treatment, restrain the patient and let the wildness wear off or in case of necessity, give 1-8 grain pilocarpine hydrochlorate hypodermatically; which will restore his calm and allay the condition. Some patients may have wild delirium for two or three days should the drug be pushed too fast.

So long as the pulse and respiration are good, you can push the treatment until nervousness and pain are allayed. If the patient has nervousness or pain occur during treatment it is conclusive evidence that enough of the drug is not being given. Push the drug every twenty minutes until these symptoms cease. For the first twenty hours push the treatment, keeping the patient saturated with the drug. For the next twenty-four hours give as little of the drug and at as long intervals as possible to maintain a mild delirium. Some may require as much as during the first twenty-four hours.

At the end of forty-eight hours, discontinue the drug and watch for pain or other withdrawal symptoms; if patient goes twenty-four hours without symptoms of withdrawal, he is ready for the after treatment. If he develops withdrawal symptoms, put him back on the treatment and push it for ten or twelve hours, when you can discontinue the treatment, let the patient come out from under the drug and will find he is all right so far as pain, withdrawal symptoms or craving morphine are concerned. The patient emerges from the treatment so far given with a clear mind and a happy and cheerful demeanor but somewhat weakened. It will be impossible for you to induce him to take his former drug as I have proven to my own satisfaction many times.

Twelve hours after the last dose of hyoscine hydrobromate, give 1-300 to 1-150 of a grain and continue this dose every twelve hours for forty-eight hours. At the close of this period, discontinue permanently all treatment with this drug.

At the close of seventy-two to ninety-six hours, the patient will suffer some weakness or exhaustion from the discontinuance of his drug, the prolonged treatment and the fact that he has been without food or nourishment up to this time. Therefore, begin giving strychnine nitrate hypodermatically in 1-20 to 1-10 grain doses every twelve hours and put him on a light but nutritious diet.

These patients do not usually sleep well during the first part of the night following treatment but this condition will wear off soon if they are left alone. Should it prove too troublesome give thirty to sixty grain doses of soda bromide at bedtime but discontinue it as soon as possible.

Should the patient have some aching in the calves of the leg it can be controlled by the hypodermic injection of strychnia nitrate 1-20 grain doses hot baths and hot water bag to the part. Diarrhoea is sometimes troublesome following treatment but can be easily controlled with one drachm doses of

the fluid extract haematoxylon. Should the case be complicated by organic disease of the heart, lungs or kidneys, it will require about twenty-four hours longer treatment, smaller doses and more careful watching of the patient. If the case has taken atropine with morphine, it may take less treatment or a tolerance for atropine may have become established and it will require more treatment.

Following this treatment which is practically finished in ninety-six hours the patient will be weak, debilitated, slightly nervous and aenemic. Therefore, tonic treatment, nutritious food and general means to build up the patient must be resorted to for several weeks.

With following clinical report of a few cases to illustrate, I will close this paper, hoping it may do much toward relieving and curing these sufferers who have been unfortunate enough to contract this habit and believing it will be as successful in your hands as it has been in mine if diligently and carefully followed.

Mrs. J. S. age 29, was taking four ounces of laudanum every twenty-four hours. Had been an addict for fifteen years. After preparation treated as follows:

9:20 a. m. 1-100 gr. hyoscine hydrobromate.
9:40 a. m. 1-150 gr. hyoscine hydrobromate.
10:20 a. m. 1-150 gr. hyoscine hydrobromate.
11:20 a. m. 1-100 gr. hyoscine hydrobromate, vomited.
1:00 p. m. Mild delirium.
1:45 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
3:25 p. m. 1-100 gr. hyoscine hydrobromate, mild delirium.
4:50 p. m. 1-75 gr. hyoscine hydrobromate, mild delirium.
8:40 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
10:40 p.m. 1-100 gr. hyoscine hydrobromate, active delirium.
1:50 a. m. 1-100 gr. hyoscine hydrobromate, active delirium.
6:45 a. m. 1-100 gr. hyoscine hydrobromate, active delirium.
10:30 a. m. 1-100 gr. hyoscine hydrobromate, mild delirium.
3:50 p. m. 1-100 gr. hyoscine hydrobromate, mild delirium.
7:15 p. m. 1-100 gr. hyoscine hydrobromate, active delirium.
7:30 p. m. pulse 140 regular.
11:15 p. m. 1-150 gr. hyoscine hydrobramate, mild delirium.
4:00 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
9:45 a. m. 1-40 gr. strychnine nitrate; pulse 140.
12:00 m. Complained of burning and pain.
1:40 p. m. 1-150 gr. hyoscine hydrobrom, mild delirium.
2:00 p. m. 1-150 gr. hyoscine hydrobrom, pulse 120, vomited.
4:00 p. m. 1-150 gr. hyoscine hydrobrom, belching gas.

XUM

5:30 p. m. 1-150 gr. hyoscine, mild delirium.
7:45 p. m. 1-150 gr. hyoscine hydrobrom, mild delirium.
9:00 p. m. 1-150 gr. hyoscine hydrobrom, some suffering.
10:20 p. m. 1-150 gr. hyoscine hydrobrom, mild delirium, rest.
6:00 a. m. 1-20 gr. strych. nitrate.
10:30 a. m. 1-300 gr. hyoscine hydrobromate.
12:15 p. m. 1-20 gr. strych. nitrate; resting.
6:30 p. m. 1-30 gr. strych. nitrate; burning.
10:30 p. m. 1-450 gr. hyoscine hydrobrom; resting, belching some.
6:45 a. m. 1-20 gr. strych. nitrate; resting.
10:30 p. m. 1-450 gr. hyoscine hydrobrom; resting.
5:00 p. m. 1-20 gr. strychnine nitrate; resting.

Case finished except for after treatment and tonic.

Mrs. F. J. Y. age 46, was taking one dram morphine per week internally. Had been an addict for ten years. After usual preparation treated as follows:

8:35 a. m. 1-300 gr. hyoscine hydrobromate.
8:55 a. m. 1-150 gr. hyoscine hybrobromate, mild delirium.
11:00 a. m. 1-350 gr. hyoscine hydrobromate, mild delirium.
1:50 p. m. 1-300 gr. hyoscine hydrobromate, mild delirium.
5:00 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
5:55 p. m. 1-150 gr. hyoscine hydrobromate, active delirium.
8:40 p. m. 1-300 gr. hyoscine hydrobromate, mild delirium.
9:40 p. m. 1-150 gr. hyoscine hydrobromate, active delirium.
12:10 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
2:00 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium. . .
5:00 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium, sleeping.
7:35 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium, sleeping.
9:00 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
9:55 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
12:40 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
2:35 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
5:35 p. m. 1-150 gr. hycosine hydrobromate, mild delirium.
8:45 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
10:45 p. m. 1-150 gr. hyoscine hydrobromate, mild delirium.
1:45 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium, sleeping.
4:45 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium, resting.
7:35 a. m. 1-150 gr. hyoscine hydrobromate, mild delirium, resting.
12:50 p. m. 1-300 gr. hyoscine hydrobromate, mild delirium, bowels moving.

XUM

1:25 p. m. 1-150 gr. hyoscine hydrobromate, some pain.
3.30 p. m. 1-150 gr. hyoscine hydrobromate, resting.
5:30 p. m. 1-150 gr. hyoscine hydrobromate, resting, bowels moving.
7:50 p. m. 1-150 gr. hyoscine hydrobromate, passes mucous, resting.
9:30 p. m. 1-150 gr. hyoscine hydrobromate, resting.
8:55 a. m. 1-20 gr. strychnine nitrate, some aching.
12:20 p. m. 1 dram fluid extract haematoxylon.
1:25 p. m. 1-20 gr. strych. nitrate, resting.
12:30 a. m. 1-20 gr. strych. nitrate; resting, happy.
Case finished except for after treatment and tonic.

"THE VARIOUS ASPECTS OR FORMS OF ICTERUS OR JAUNDICE."

Dr. H. M. Williams, Wellston, Okla.

The subject of this paper is one with which every physician is familiar, to a limited extent at least, though like many of the common symptoms, there are but few physicians who have been engaged in actual practice for a term of years, but at some time in his medical career, has searched in vain to ascertain the exact lesion that brought about this symptom called jaundice and the patient passes into the great beyond leaving our diagnosis to be made at the autopsy, in case we are fortunate enough to get one. This subject could, possibly, have been considered better from a surgical than a medical standpoint, as sooner or later all obstructive cases must pass into the hands of the surgeon.

Thus, being a regular practitioner, we will not be able to devote this paper to our own researches exclusively, but will depend upon that, in a large measure, made by others, as we find ourselves in that predicament which one ofttimes reaches, when they arrive at a point where conclusions are hard to draw. We shall be able only to briefly discuss some of the most common causes that lead to jaundice, with reference to some special cases, leaving you to draw your own conclusions.

The following is probably as good definition as we could obtain for jaundice: "This is not a disease, but only a symptom group occurring under a variety of conditions and characterized by yellow discoloring of the skin, tissues and fluids of the body with bile pigments and excretions of the pigments in the urine."

This symptom is found in almost all climates and ages, perhaps most often between the ages of thirty and sixty, more often in female than male, owing to dress custom or wearing the corset. It is not uncommon to meet with a patient slightly jaundiced to a well marked case, especially is this true in a malarial district. The physician's duty is to determine, if possible, the source, whether it is due to some form of obstruction or other causes which are classed as the non-obstructive class. Though the opinion is maintained by some that all forms of jaundice should be classed as the obstructive type, yet this at this time is not the accepted opinion.

A Dr. Hunter classes the two forms as obstructive and toxaemic, whose opinion appears to have considerable support and to us seems a very reasonable classification. Gibson makes the following classification of the obstructive form of jaundice: "(a-1)—Obstruction within the duct outside of the liver such as gallstones, foreign bodies, cancer of the ducts and swelling of the mucous membrane of the ducts, extending from the duodenum. (b-2)—Pressure on the ducts outside of the liver which is due to enlarged glands,

XUM

tumors, cancer of the head of the pancreas and various growths or abnormalities of the abdominal cavity. (c-3)—Obstruction of the ducts inside the liver which is usually caused from cancer of the small bile ducts. (d-4)—Pressure of the ducts inside the liver, caused from cancer nodules of the liver, abscesses, hydatid and cirrhosis of the liver. Catarrhal jaundice, the most frequent type met with, and one that most cases are diagnosed as, at the onset, results usually from duodenal catarrh, as the result of an attack of indigestion or error in diet, colds, exposures, malaria, portal obstruction, Bright's disease, or chronic heart disease. The non-obstructive type is that form where there is no obstruction in the large ducts, though there may be a slight obstruction of the small ducts. Dr. Hunter makes three groups of this class. First, those due to drugs, snake bites, etc. Second, those due to septic fevers, malaria, enteric, yellow fevers and pyaemic conditions. Third, acute yellow atrophy.

In this type the jaundice is much less pronounced than in the obstructive type, there being only a partial absorbent of the bile pigments by the lymphatics of the liver.

While it is very common for us to think of jaundice at times as being the result of an inactive state or condition of the liver, this is not the case. Jaundice from the suppression of the liver function cannot be possible as bile pigment can only be formed as the result of hepatic cell activity. "Contrary to the accepted pathological doctrine, the bile which is eliminated by the urine and deposited into the skin, in case of obstructive jaundice, does not find its way into the general circulation through the blood capillaries. It is the lymphatic system of the vessels alone, which absorb biliary matter in obstructive jaundice and it is through the instrumentality of the thoracic duct, that they reach the general circulation." If the thoracic duct should be ligated it would be hard to produce jaundice in the obstructive type. It is further claimed to check jaundice after once set in, at least until small colateral ducts may form.

Dr. Gibson further states, that it is always important to determine whether jaundice is due to some gross obstruction of the large ducts and to remember that nearly all cases of jaundice are due to malignant diseases, gall stones, catarrhal jaundice or cirrhosis.

Under malignancy we may have cancer of the bile ducts, or of the head of the pancreas, cancer of the small bile ducts inside of the liver or cancerous nodules inside of the liver. In determining the above some of the most pronounced symptoms are the following: However, in the prodomal period, there is hardly any time that it can be distinguished from a case of ordinary jaundice, has usually the same symptoms at the onset. Following in a few days with vomiting, loss of appetite, nauseated condition and malaise. After the disease has continued for several days, the characteristic symptoms become more pronounced. The vomiting more severe. May vomit blood, pain intense. The jaundice may be of a greenish yellow. Patient may become

XUM

delirious, passing into a state of coma. Lucine and tryson crystals are found in the urine.

Hypertrophic cirrhosis might present similar symptoms, but usually the enlarged liver and duration of time will eliminate the above condition.

Gallstone stones may be found either in the gall-bladder, in the cystic duct, in the common duct, or in the hepatic duct, or in the liver itself. According to Dr. Krauss an attack begins suddenly, usually two or three hours after a meal, with violent spasmodic, paroxysmal pains over the hepatic and epigastric regions reflected upward and to the right side of the thoracic cavity; with laborious respiration, distressed feeling, nausea and vomiting at times; slow, hard pulse; cold extremities.

Jaundice does not always follow an attack of gallstones, but as a rule will in a few days, if the obstruction is in one of the large ducts. Gallstones may exist in the absence of biliary colic, with jaundice, though the diagnosis is seldom made.

Catarrhal jaundice is the diagnosis given to most cases of jaundice at the onset, and in the event it should be due to an obstruction that is removed of itself, the diagnosis might as well stand, until another attack at least, but the most pronounced symptoms of a case of catarrhal jaundice, are those following an attack of indigestion, the discoloration of the skin is a bright yellow, never a dark green, no marked cerebral symptoms though the patient may feel distressed, constipation and clay colored stools as a rule. This type of jaundice is brought about by a swelling or thickening of the mucous membrane of the common duct; as previously stated is often the result of a catarrhal condition of the duodenum. The gall bladder, owing to its extended condition, may be felt at the lower margin of the liver. This condition is frequently found in children who are subject to derangement of the digestive tract; seldom proves fatal and yields readily to treatment.

A cirrhotic liver does not always cause jaundice, though as a rule will. It is found almost, if not entirely, in that calss of patients addicted to excessive use of alcohol, although the opinion is held by some to occur in those who have not used alcohol, though this seems to be a disputed question.

A cirrhotic liver is usually atrophied, though may be hypertrophied, owing to the formation of fatty cells, but in either condition we find a hard liver with a well defined margin. An ascites is usually present, with a slight chronic peritonitis, odema of the feet, marked nervous symptoms, also a uremic condition; the uremic symptoms are so pronounced that at times it is hard to tell if we have a cirrhotic liver or a cirrhotic kidney, which fails to excrete the urine, and usually proves fatal.

The non-obstructive or toxaemic type, is that form of jaundice that is the result of some poisonous chemical or infectious fevers. Snake bites will at times produce a marked case of jaundice, also pyaemic condition will do

the same, this form of jaundice may find its way to the liver through the general circulation.

In conclusion, we find jaundice due to the malignancy of the bile ducts is rare, although cancer of the head of the pancreas is more apt to be met with.

The catarrhal type of jaundice is the one most frequently met with. Gallstones are very common, and as a rule the diagnosis is not difficult. But may be confused with gastritis or neuralgia of the stomach. Contrary to the prevailing opinion we have met with one case having all the characteristic symptoms, due in our opinion to a cirrhotic liver, female, age fifty-seven, liver hypertrophied, with a pronounced jaundice, who gave no history of the use of alcohol.

Thus we conclude that all conditions of jaundice that does not readily yield to sane treatment, should require very close investigation as to the source, if in doubt, consultation is necessary in most cases from a surgical standpoint, because if not relieved within a short period it will prove fatal. The prolonged cases will be found due as a rule to some form of obstruction which will require surgical proceedure if any relief can be had.

DISCUSSION.

Dr. A. K. West: This paper is so complete and so fully covers the subject that I haven't very much to add. There was one form of jaundice that I notice the doctor didn't take up, it is hemapheic. Outside of that form of jaundice I know of nothing that the doctor didn't pretty well cover and I have nothing to add but to commend the paper.

Dr. Walker, Shawnee: The paper and subject is a subject that I don't think we ought to pass over so lightly as not to recognize the condition and have a little more discussion. The form of jaundice that Dr. West spoke of is another form from the paper, and there is yet I believe another form called acute febrile jaundice. In Shawnee we have had a very marked epidemic of what we pronounce Weil's disease in the last six or eight months and out of a population possibly of eight or nine thousand we have had I expect three hundred and fifty cases of acute febrile jaundice. Those are the only two kinds of jaundice that I know of not covered by the paper.

XUM

RABIES, WITH REPORT OF A CASE.

Dr. G. A. Morrison, Poteau, Oklahoma.

Rabies or hydrophobia is an acue infectious disease of the central nervous system which occurs in man as well as in other warm blooded animals. A disease communicable to man by the bite of a dog or other animal suffering therefrom. That rabies is caused by a specific micro-organism is a conclusion unavoidable, notwithstanding the fact that all efforts to establish this theory by experiment and observation have proven futile. Even though the specific infectious agent is not known, the same can be propagated in the central nervous system of living animals.

Careful examination of the brain, spinal cord, nerve trunks and saliva after inoculation has shown the poison present. It has been demonstrated that the poison is present before any symptoms have developed in the period of incubation while to all appearances the animal was in normal condition. Authorities agree the poison is not usually present at any time in the milk. semen, aqueous humor of the eye or cerebro spinal fluid, though in some rare instances, it has been found in some of these localities. That accidental infection usually results from the bite of a mad dog, and therefore is a direct result of the saliva being introduced into the wound made by the teeth, is a fact known to us all.

Infection may occur by the licking of an abrasion of the hand by a pet dog. While the dog is going through the period of incubation before any symptoms of the disease have manifested themselves in the animal. Whether or not an abundant nerve supply renders a part more specially liable to infection is a question undetermined. The experiments by way of artificial inoculation of animals would indicate the greater the nerve supply the greater the liability to infection as injections made into the brain, nerve trunks or spinal cord are uniformly successful and less so in other localities. Experience with and observation of cases teaches that the infection is always greater in deep wounds. Whether his theory be true or not the danger from bites on the hands or face is greater independently of this, by reason of the fact that they are usually bare, thus giving free access of the saliva to exposed tissue. Whereas in covered portions of the body the clothing would take up a portion of the poison and not so great an amount would come in contact with the wound surface. But be the portal of entry what not the disease develops only where the poison invades the central nervous system and observation goes to show that the course of the poison from the seat of infection to the brain and spinal cord is for the most part by way of the nerves themselves and not through the blood or lymph channels, which are

the distributors of the various micro-organism and toxics in other infectious disease.

The period of incubation in rabies varies in different species of animals, also in different individuals of the same species. The usual time in dogs is three to five weeks, while it varies greatly in human beings. Six weeks to two months being the average period of time elapsing between infection and manifestation of symptoms. Usually there are unmistakable symptoms of the disease in the course of the second month after infection, very rarely in fifteen days and more rarely still in three months or thereafter. During the period of incubation the patient suffers no more inconvenience than from a simpler wound of similar size.

In fact Tillman asserts that a wound made by a rabid dog will heal usually with exceptional rapidity in human beings. There are no symptoms during the period of incubation that would indicate whether the patient had been bitten by a rabid dog. There is a marked similarity in the characteristic symptoms of the disease as manifested in the dog and the human being. In the human subject the first symptoms appearing after the period of incubation are psychical. The individual being depressed in spirits, irritable, excitable and restless, suffers from sleeplessness, loss of appetite. He is oppressed with a sense of impending danger. Even this early there may be antipathy toward liquids. The reflexes and sensibility are often greatly increased; sometimes loud talking, a bright light, or any unusual noise is very distressing. Osler includes in this stage the infected condition of the larynx and difficulty in swallowing consequent thereto, which is the most distressing as well as the most characteristic symptom of the disease in man.

Tillman in discussing the subject regards this symptom as the beginning of second stage. There is a difference of opinion as to temperature at this time, some others claim to have noticed an elevation of temperature while others say there is no change either way. The huskiness of the voice at this time depends more or less on the amount of infection of the larynx. Along with these symptoms there appears severe spasm and the muscles of respiration occurring in paroxysm, along with the slightest excitation of nerves the sight of liquids even being sufficient sometimes to cause them. The spasms of muscles of deglutition and respiration readily become general and are usually clonic, sometimes tetanic. Salivary secretion is increased, nerves of special sense also being infected, not only sight and hearing, but sense of smell also. For the most part the mind is clear but there are apt to be maniacal seizures from time to time. Pulse becomes gradually weaker, being greatly accelerated after a paroxysm. Temperature somewhat elevated differing in different individuals running from 100 to 101 1-2 or 102.

The third stage is marked by weakness, exhaustion and paralysis. There is some abatement of the spasm and the difficulty of swallowing and breathing. This last stage lasts from four to twelve hours when death occurs, sometimes with recurrence of spasms but oftener quietly. Some others claim that consciousness is present to the last, others that unconsciousness supervenes. The duration of the disease in man from the first appearance and the

prodromal symptoms to death is from two to four days when the symptoms have once developed the termination is always fatal. The diagnosis of rabies presents no difficulties. Usually when called to see a patient suffering from the diesase we have the history of a dog bite, which coupled with the symptoms manifest enables us to make a diagnosis without any trouble.

In the matter of treatment there is but little to say. Prior to the advent of the Pasteur treatment there were various plans of medication in vogue, attended with little favorable results.

The treatment being based on general principles. Today we expect much from the Pasteur treatment just as we do from the use of anti-toxin in our diphtheria cases. The treatment is so familiar to all as to make it unnecessary to enter into detail in this paper. In addition to the use of cord emulsion the general health of the patient should receive careful attention. The matter of elimination demands close observation on the part of the physician in charge and the hygienic surroundings of the patient should be such as are most conducive to general health. There are numerous places where the Pasteur treatment is administered under the most careful observation of competent men and the results obtained are most gratifying in the vast majority of instances. It has been my misfortune to handle a little patient suffering from hydrophobia recently, a report of which I make a part of this paper.

Was called to see Willie B., age four and one-half years, (white), May 30, 1910. On arrival at home found the boy on a bed being cared for by mother and neighbors, having been bitten by the family dog. Face was covered with blood to the extent that a glance suggested great damage to the whole cheek.

The mother gave following history of condition: Child had accompanied older member of the family to the place where the father was engaged in his work, carrying to him his dinner. On their return home they crossed a weed-covered ditch near the house; as they did so, the dog sprang upon the boy lacerating his face.

Examination of injuries showed extensive deep lacerations over and to the outside of right eye about six in number. A laceration beginning at the inner cauthers of the right eye and extending across the superior region of the malar bone to to the cheek. Another cut about an inch long was made across the anterior surface of the neck. Patient was anesthetized, the wounds cleansed with a bi-chloride solution, thoroughly cauterized, touched with pure carbolic acid followed with alcohol and then dressed with moist bi-chloride gauze.

At 5:00 p. m. the father took the boy to Oklahoma City, Oklahoma, for Pasteur treatment. He arrived on the morning of the 31st day of May and a twenty-one days' course of treatment was begun. At the expiration of the twenty-one days the father returned home with the boy who was apparently in excellent health. He was about town and seemed to be entirely free from any ill effects. The wounds had healed kindly and to all appearances the child had fully recovered.

XUM

He remained in apparent health until June 27th, when the mother phoned me Willie was not well and asked me to see him. On arrival I found the little fellow about the house and at his play but not well. His face was slightly flushed. Temperature ninety-nine. Tongue coated, bowels had been slightly constipated for a day or two. In short the case presented the ordinary picture of a beginning remittent fever.

I prescribed for him and called again later in the evening when I found the temperature practically the same as early in the day but the patient complaining of headache and sore throat. No evidence of sore throat Tuesday morning, the temperature was one hundred and one, slightly nervous, mind clear, could get up and go about the room which he did. Bowels had moved freely. Still complaining of sore throat. Nervous condition more marked; at the evening visit found the nervous condition intensified very much. Temperature however had dropped to one hundred. Insisted it hurt him to swallow.

The manifestations of nervous disturbance simulated those of meningitis somewhat.

I became suspicious of coming trouble. This was about 5 p. m. About 9 p. m. Dr. R. L. Morrison saw the case with me, and the conditions at this time were such as to warrant a diagnosis of hydrophobia. The father was made acquainted with the gravity of the case and an attempt was made to alleviate the suffering of the child by the administration of sedatives. On Wednesday morning I rang the home and inquired as to the condition of the little patient, was told by the father the boy seemed better. Half hour later I was called hurriedly to his bedside and found him in a violent convulsion. However he quieted down in a few minutes and asked to be allowed to go out on the front porch which he did. Then said he wanted a drink. Water was handed him but he could not swallow it. An attempt to do so being followed immediately by a convulsion; when the paroxysm subsided he wanted to return to bed. When his father attempted to pick him up he said he could walk; being allowed to try, he took a few staggering steps, threw his hands up, his body bent backward and limbs became uncontrollable losing all power of co-ordination, had to be caught up in arms to prevent falling.

This was the general condition up to the time of his death which occurred at 12:15 Wednesday. At no time after Tuesday evening was he able to take a drink of water and from early Wednesday morning to an hour before his death when he passed into the paralytic stage was he able to take any fluids except at about 9:30 a. m., twenty or thirty minutes after a hypodermic of 1-8 grain Morphia Sulph. we succeeded in getting two or three teaspoonfuls of milk down him by being very careful in administering it with a spoon. At about 10:30 he was given another hypodermic of 1-8 grain Morphia which for a time seemed to have little if any effect in lessening the force of convulsions. From early Wednesday morning until near the hour of his death was almost one continuous convulsion with all the horror of involuntary muscular contraction and facial contortion incident to hydrophobia. Even though in the paralytic stage at the time of death in so far as voluntary mo-

XUM

tion was concerned, the death struggle was marked with involuntary contraction of muscles of limbs, convulsive in character. This case was seen by Dr. Chambers, Dr. R. L. Morrison, Dr. Hardy and Dr. Plumlee, all of Poteau, Oklahoma, and the diagnosis of hydrophobia concurred in by them.

The case was one of peculiar interest in many respects. In the first place it was an innovation on the routine of general practice, affording an opportunity to come face to face with actual conditions rarely met with. It was of interest in that almost immediately after the receipt of the injury or at most in a very few hours the Pasteur treatment was begun and of interest because of the early development of the disease after the cessation of the treatment. A question arises in my own mind as to whether a better result would have been obtained by prolonging the treatment to say thirty or forty days. Also a question as to whether the infection was more extensive by reason of the vascularity of the tissues. Or whether the nerve supply was the direct carrier of the infection.

DISCUSSION.

Dr. Ellison, Norman: Gentlemen, I enjoyed that paper a great deal. It showed a great deal of study on the subject. There is very little literature on the subject. The recent literature is not very large and is scattered over the world almost in four or five different languages. I have hunted it for several years, mostly in French. The Germans have some.

I wish to say a few words because I have been a good deal interested in that this year in connection with the Board of Health work at Norman. We have been called on nine different times to make a diagnosis of rabies in dogs. The difficulty of making any kind of a diagnosis is because the tissues don't reach us right. We have a laboratory test by which we take a portion of the brain and study the brain cells. It has been stated that if a dog has had the rabies from four to ten days that certain changes appear in the brain cell, and when found you can say positively that hydrophobia exists in that dog.

Then there is another method and that is by taking a section of the spinal ganglia. Take this data with the brain tissue. We take the brain cells and get them on a glass slide and examine them which takes all the way from five minutes to five hours.

Now we have had difficulty in getting the doctors to understand what we want to examine for hydrophobia signs. We get all kind of material. Of these nine cases that came in only three were in good condition and the rest of them were in all kinds of conditions. Usually the brain is wrapped up in a gunny sack and shipped, is on the road from twenty-four to ninety hours and comes in there in a stinking condition with maggots in it. Another thing is the dog shows some symptoms of hydrophobia and somebody blows his head off and then they send in a package of gun wads, brains and dog hairs, and then blame the laboratory.

One of the best ways is to kill the dog, then cut the head off and include

XUM

with the head the neck so as to get two or three spinal ganglia and take that head and pack it in ice in a bucket and then ship it in to the laboratory. And in that way it will be in condition to be examined. Another way is to preserve the brain and cord in alcohol. The state has provided that the examination shall be free of charge to the physician. All he has to do is send in the dog's head and pay the express and the report usually comes out in from twenty-four to forty-eight hours. In the case where a patient has been bitten by a dog the rabies do not develop for ten days and that allows time in which to make this diagnosis, so there is no great hurry to get the report from the laboratory. If the treatment is begun within ten days there is considerable time saved.

Dr. Jenkins, Enid: I would like to ask a question of the gentleman who has just left the floor. It seems that he has had a great deal of experience. What does he consider the best cauterization for a dog bite?

Dr. Ellison: That has been a question and it is generally considered that the electric cauterization is better than the medical.

XUM

IRITIS.

Dr. W. Albert Cook, Tulsa, Oklahoma.

Among the everyday diseases that the ophthalmologist is called upon to treat I know of none which at times requires more attention and tact to handle than iritis.

It is a disease which has usually run several days before we get to see it and these patients nearly all tell the same story; they did not come to have the eye treated sooner as they thought they had only caught cold in the eye or got some dirt in it, and that washing it in warm salt water would relieve it, or else they had been treated by the family physician for an acute conjunctivitis, which is not an uncommon mistake as all cases of iritis are ushered in with conjunctivitis unless it be an exceptionally mild case.

One-half of all the cases of iritis are caused by syphilis and about twenty-five per cent by rheumatism, and the balance are traumatic, idiopathic and a few tubercular. It shows no preference as to sex, but we see more cases in the male than the female as they are more prone to syphilis, and is a disease of adult life and seldom seen in children unless traumatic or congenital, but I have never seen a congenital case.

The prominent symptoms are photophobia, increased lachrymation, impaired vision, and pain over the brow and radiating down the cheek to a more or less degree, and sometimes so severe that an opiate is required; the eyeball is sore and tender on pressure which increases according to the involvment of the ciliary body; reddening of the conjunctiva which is more marked at the pericerneal zone; the iris is muddy and swollen an dfound to have lost its luster, and the margin shows a dark ring, the edge is rough and may be said to resemble saw teeth; the cornea is opaque and the aqueous humor is thick and turbid.

The diagnosis is not usually difficult but it has been mistaken for glaucoma and conjunctivitis. In glaucoma the cornea is usually clear and we do not have the scleral injection, while the pupil is dilated, the anterior chamber is clear so that the fundus can be seen and the excavated disk which is characteristic of glaucoma is visible; and increased tension very marked.

Conjunctivitis is not painful but has some discharge, the iris and cornea are not involved and all the symptoms are more mild.

Iritis is liable to recur and an eye that has had one attack is never as good as it was previously, although it may nearly approach its normal efficiency. The attacks are not nearly so apt to recur if the patient does not overtax the eye, while if it was caused by syphilis or rheumatism by giving these diseases proper treatment and closely watching them in the future or having them take a treatment of "606" if the former.

The pupil becomes contracted and its usual reaction to light and accommodation are affected, slightly in mild cases, while it does not respond at all in severe or pronounced cases. Exudates are almost invariably present on the posterior and anterior surfaces, and margins of the iris and are of a glue-like consistency. This is what causes the adhesions to form between the iris and the lens and is the chief cause of blindness in this disease. The pupil is thus often bound to the lens about its whole circumference so that it becomes immovable or adhesions take place at various points along the pupillary margin causing the pupil to contract and dilate irregularly when exposed alternately to deep shadows and bright light, this irregularity in dilation of the pupil is plainly shown when a mydriatic is sinstilled into the eye. Eventually the pupillary space may become covered with an exudate and if this be dense vision is seriously impaired.

In the early stages the snyechia may be broken down by the prompt use of atropine; when these adhesions are broken up dots of brown or black pigment are left on the anterior capsule of the lens where the adhesions have formed. Sometimes these adhesions stretch as the pupil dilates leaving a thread or a patch of exudate connecting the margin of the dilated pupil with the point of adhesion on the anterior lens capsule; vision is always more or less impaired owing to the cloudiness of the aquaeous humor, deposits on the lens capsule, and cornea, or exudates into the pupil and even into the vitrious chamber; interference with accommodation due to congestion of the ciliary body also causes temporary impairment of vision.

Occasionally attacks of iritis are encountered in which pain and redness are so slight as to pass unnoticed and in these cases impaired vision is the only symptom complained of, although upon examination synechie are found which have been gradually forming for some time.

The prognosis as regards having an useful eye after an attack of iritis depends upon three things, the time of recognition, the cause, and the line of treatment pursued. The treatment should start just as soon as the diagnosis is made, and you have satisfied yourself that there is not tendency toward glaucoma. The first thing to do then is to dilate the pupil or at least attempt to do so and see if adhesions have already formed. This is in some cases very difficult or impossible as adhesions may have formed before the case came under observation or there may be anterior and posterior adhesions from a previous attack, but all patients who have had previous attacks are not slow in presenting themselves to the ophthalmologist and have their diagnosis made when they arrive.

Atropine is to iritis what quinine is to malaria or salvarsion is to syphilis, and as has been said, it is the beginning, the middle and the end of treatment of iritis.

A few drops of one per cent solution of sulphate of atrophine should be instilled into the conjunctival sac and repeated sufficiently often to paralyze the accommodation and to keep the pupil dilated. This may be aided or still further increased by adding to the atropine one per cent cocaine hydrochlorate.

XUM

Atropine not only dilates the pupil but prevents dangerous adhesions to the lens, but it also relieves the congestion of the vessels both of the ciliary body and the iris. It also applies the principle of the rest cure to the inflamed eye by paralyzing not only the ciliary muscle but the sphincter iridis. Smoked or amber tinted glasses should be worn to protect the eye from light and also wind and dust if the patient is to be allowed to go out of doors any; hot applications should be applied every hour in the form of hot compresses. The pain in iritis is often severe and in addition to the remedies just mentioned others are often needed, and we have a valuable adjunct in dionin in a three to ten per cent. solution, five or six drops instilled at intervals of a minute induce a serous exudation and marked chemosis of the conjunctiva; this artificially produced swelling acts as a lymphagogue and counter-irritant which gives great relief.

In severe cases where the above mentioned remedies do not give relief from the severe pain counter irritation in the form of leeches, blisters, or the old-fashioned mustard draft applied to the temple give marked relief. Aspirin in doses of from ten to fifteen grains in rheumatic iritis is very beneficial for the pain.

Proper elimination should not be overlooked and I usually give a course of calomel followed by a saline; iron, strychnine and quinine in this malarial country are indicated, and the iodide of potassium should not be overlooked and given in increasing doses whether it be syphilitic or not.

When the tension increases to a point where the sight of the eye is endangered paracentesis should be performed and a few drops of aquqeous allowed to escape, and repeated from time to time if the tension continues.

Iridectomy has been recommended to prevent recurrences.

AN OBSTETRICAL RECORD OF FORTY YEARS.

Dr. William Nairn, Alluwee, Oklahoma.

When I was first requested to write an article for your society on the above subject, it appeared to me that my experience was so commonplace, was so nearly like that of every other doctor, that it would be an imposition on the intelligence of your membership.

But at the renewed request of Dr. Freer, and on reflection, I reached the conclusion that though my experience was commonplace it might be instructive and interesting, as some of the most useful lessons of life are learned from everyday occurrences.

Forty years ago I began the practice of medicine and I have continued in the business without intermission to the present time, though for three years of the period under consideration I did but little.

Thirteen hundred and seven obstetrical cases have come under my observation, including miscarriages and premature labors. The most noteworthy feature of my observations, it appears to me, is the almost unanimous occurrence of the left occipito-anterior presentation. There were four shoulder, three breech, six right occipito-anterior, thirteen in all—and the remainder as before stated, were normal, or left occipito-anterior presentations.

Miscarriages that have come under my observation have shown a large fatality—one-fourth having died.

As to the number of multiple pregnancies, there were thirteen in all—about one to one hundred labors. There were only three babies born of that number, if the cases of talipes are left out, and those that were tongue-tied, that were to any marked degree abnormal. One of these cases had six toes and one had six fingers, These supernumerary members I removed without diffieulty or danger. The other abnormal case was of a different character and of greater interest. It occurred in a case of twins. In one infant the entireencephalon was outside the cranial cavity, through the poterior foramen, covered only by the membranes of the brain, and connected with the cranial cavity by a band no larger than the index finger. It appeared normal in other respects, nursed as readily as the other child, and was quite thrifty until four months old, when it was suddenly taken with convulsions and died. I have a photograph of the child and hope to be able to present the society with one.

The following paragraph may savor somewhat of egotism; but a man who has practiced medicine forty years and is nearing his second childhood, may, perhaps, be excused if somewhat egotistical. No parturient woman that came under my observation that was in good health at the time of confinement but what got up without serious trouble—not a single case of septicemia or

infection following. There were four cases in which the patient had pneumonia at the time of delivery and they all died. Malarial fever is another complication that is responsible for six deaths in my obstetrical experience. Eight cases of puperal convulsions occurred in my obstetrical practice. And as before stated, miscarriages and premature labors have been attended with a large percentage of mortality.

In all of the cases that I have attended, but one called for instrumental delivery. She was a primipara, and at the first examination I realized I had caught a tartar. The transverse diameter of the pelvis was smaller than I have before or since met with. I at once advised the husband of her condition and suggested counsel. We successfully delivered the child without injury, and without serious injury to the mother—a slight laceration of the perineum being all. I advised her not to become pregnant again—an admonition she has religiously observed, though fifteen years have elapsed since it was given.

Fifty cases are the maximum number that I attended in one year; six cases in one week, though I could have attended seven, having been seen by the man in the case previously and agreeing thereto; but arriving home late at night and being very tired. I heard him making inquiry for me at my residence, and I layed low till he left and thus escaped.

There may be some desire to know what were my methods of procedure in conducting a labor case. If there were distinguishing features it was in strictly adhering to the motto, "Beware of meddlesome mid-wifery," though if there was a cause of action, to act decisively.

XUM

A NOTE ON THE EARLY DIAGNOSIS AND TREATMENT OF MENINGITIS.

By C. J. Fishman, B. S., M. D., Oklahoma City.

In view of the present epidemic in certain parts of Texas and the invasion of some of the counties of our own state with this dread disease, it may not be out of place to recall to mind a few points regarding this infection which may help to prevent its spread in the communities where it is first seen.

Those diseases which, including the epidemic cerebro-spinal type, give a clinical picture of meningeal irritation may be classified as follows:

1. Meningitis.

Acute, epidemic, pneumococcic, influenzal and meningitis due to the suppurative cocci, chronic, tubercular and syphilitic.

2. Polioencephalitis, a cerebral type of anterior poliomyelitis which is easily mistaken for meningitis clinically.

3. Meningismus, a symptom-complex simulating meningitis clinically and found most freuqently in children in the course of acute infectious diseases particularly, apical pneumonia, gastro-enteritis, ototis media and typhoid fever.

Doctor Sophian of the Rockefeller Institute who is now in Texas studying the present outbreak, says the clinical diagnosis is never certain even when a complete clinical picture is present. A spinal puncture will not only determine the presence of the disease, but also the type. This procedure is easily performed without any danger and with great relief to the patient in all types of meningeal irritation.

The finding of a turbid fluid in a spinal puncture will place the cause of the meningeal symptoms under the first group and by microscopic examination, it is easy to determine the organism and type of acute meningitis present. This is of great importance inasmuch as the specific Flexner-Jobling serum is of benefit only in the acute epidemic type. The organisms are diplococci negative to Gram stain and found mostly within the leukocytes.

In the tubercular type and in polioencephalitis, the cerebrospinal fluid is clear, comes out under increased pressure, and ahs an increased number of leukocytes in the fluids. In the tubercular type, a fibrin coagulum settles on standing and in most cases, the tubercle bacilli can easily be found in this membrane. A leukocyte count of the blood will usually show a moderate increase of about 15,000 to 18,000 in the tubercular type, while the count will be normal or slightly above normal in the pre-paralytic stage of polioencephalitis or poliomyelitis, which at this time so frequently resembles meningitis clinically.

XUM

In meningismus the spinal fluid will be negative but the patient's symptoms will very often be promptly relieved by this simple proceedure. The blood findings and the physical findings will depend upon the associated cause.

TREATMENT—Prophylaxis is most important to the community. According to R. Debre, 25 per cent of the persons in contact with a case of cerebrospinal meningitis will harbour the organisms in their nasopharynx without presenting any symptoms of illness. A gargle of one-half strength hydrogen peroxide and a weak alkaline nasal spray such as Dobell's solution should be used by all persons in contact with a case. Absolute isolation of the patient with the most rigid disinfection of the room, bedding, etc., is to be demanded in every case. Isolation of patients with a coryza during the course of an epidemic, with bacteriological examination of the nasal discharge should be carried out. It might also be advisable in case of a positive finding to give a prophylactic injection of serum.

In the Flexner-Jobling serum we have a specific agent that first, reduces the mortality from 75 per cent to about 20 per cent. Second, shortens the course of the disease materially, and third, reduces the complications and the terrible sequelae to a minimum. This should be immediately upon making the diagnosis, by injecting 20 to 30 Cc. of the serum into the spinal canal after drawing off that much or more of the spinal fluid. This is to be repeated every 18 to 24 hours until convalescence is noted or until four doses have been given.

Other therapeutic proceedures are ice bags to the head and neck, hot baths to produce relaxation, and general care of the bowels and kidneys. Of medicinal treatment, aseptic fluid ergot in one-half to onec.c. doses hypodermically, every six hours, quiets the cerebral excitement by contracting the blood vessels and relieving the cerebral congestion. Small doses of morphine by hypo and sodium bromid by mouth or rectum is also indicated.

EDITORIAL

EPIDEMIC CEREBROSPINAL MENINGITIS.

At the time of this (January 15) considerable excitement is evident from the outbreak of epidemic cerebrospinal meningitis in the city of Dallas, Texas, certain other places in that state and in the southern counties of Oklahoma. It is to be hoped that the reports are exaggerated, but the gravity of the situation is attested by the fact that the trouble seems at this time to be slowly increasing. In October there was one. November seven. December 79 and from January 1st to 13th, there were one hundred and one cases of the trouble, the death rate running about fifty per cent.

Dr. A. Sophian of the Rockefeller Institute, who has been in Dallas assisting the local health authorities in the treatment of the disease recommends the following prophylactic measures:

The internal administration of from 40 to 60 grains, in broken doses of urotropin. In this connection it is interesting to note that Fullerton of Cleveland (Journal A. M. A. Jan. 13) states that "when the cerebrospinal cavities are to be protected the dose given may be as high as 200 to 250 grains daily though no doubt 100 or 150 grains are sufficient." The possibility of the drug being an irritant in such doses should be remembered. The thorough and continued cleansing of the nasal and naso-pharyngeal passages, and, of course, the maintenance of the general health and bodily resistance. The staff of the Dallas City Hospital including Dr. Sophian each took small immunizing doses of the Flexner serum intermuscularly, though this is not considered absolutely preventative and should be discouraged in view of the fact that the visible supply of serum in the United States and for that matter the world is very low when its possible needs are considered from the viewpoint of an increased and widespread epidemic.

A consideration of the etiology of the epidemic, is at this time, largely conjectural though it is known that the specific infection is the diplococcus intracellularis meningitidis of Weichselbaum and further than that just what elements or surroundings cause an epidemic is uncertain.

It should be remembered that we always have isolated cases of meningitis due to infection with the penumococcus and from other infectious processes, but that does not make up or cause the epidemic form we are now dealing with. An examination of the spinal fluid of the Texas cases shows the presence of the Weichselbaum diplococcus practically in every case and not the presence of the penumococcus, which fixes it properly as the epidemic type if the increasing cases did not convince one of that fact.

Perhaps the best thing a physician can do in the event of any case arising

XUM

in his practice is to insist on strict quarantine of the exposed persons and a thorough fumigation and cleansing of the premises.

The Texas cases are being treated symptomatically as is usual in such cases with the additional spinal puncture, withdrawal of the fluid in an amount of about 20 to 30 c.c. and replacing this fluid with the Flexner serum. The blood pressure is constantly recorded during the injection and if during the work the pressure falls approximately 20 mm the injection is stopped for a time and then continued or discontinued as the patient's condition warrants. Of course, throughout, the most rigid asepsis is maintained; the injections are given daily in the severe cases and correspondingly less in the milder types.

THE PROBLEM OF THE TUBERCULAR.

What to do with our tubercular people is one of increasing importance to the general public; a proposition that must naturally largely be worked out by the medical profession and the intelligent class of the laity.

The greatest drawback confronting the successful treatment and preventing ultimate success in tuberculosis, lies not so much in the lack of co-operation on the part of the patient, which is often a serious hindrance to success; it lies not in the failure of intelligent medication and dietetics, for they may be given without success, but every proposal of the physician and act for the betterment of the patient is so often rendered abortive from the fact that it is impossible to give the patient the surroundings and quiet necessary to a successful treatment.

In pulmonary tuberculosis rest, absolute rest, is more than any other consideration necessary for a cure; the brilliant results in the treatment of this disease are largely produced by rest plus other intelligent and co-operative measures in the hands of men who have sanitariums and can enforce the proper regime in their cases. On the other hand all who have given the matter attention are compelled to admit that their efforts have not been rewarded or if so very poorly when they attempt to treat these cases at home or allow them a little latitude in the way of pursuing their usual employment.

The problem of the whole matter lies in the fact that the rich and well to do can have the necessary surroundings, rest and treatment; can lay aside their struggle for existence and thus secure a cure or at least a respite from the disease, while the poorer classes must be content to take their treatment mixed with the struggle for bread, with the consequent lack of success which seems to follow untimely exertion, physical and mental exercise.

The poorer classes, by reason of this inability to care for itself remain a constant focus of infection and through them the disease is constantly reappearing and new centres of infection made.

The state in some instances, charitable and philanthropic organizations in others, is establishing institutions for treatment of tuberculosis, but all their combined efforts are not enough to cope with the situation and they

should be supplemented by the establishment of an institution or institutions in each state sufficient to properly treat all classes and at least give the balance of power to the cause of prevention and limitation of the disease; each case that is cured means a lessening of the cause.

We are spending vast amounts of money for other purposes and undoubtedly we are paying less attention to the prevention of our preventable diseases, especially tuberculosis, than its importance warrants.

The moral influence of an institution radiates from the institution and the good it does in an educatioanl way gradually spreads to all and makes prevention an easier matter for the people think about the subject and gradually give their aid.

Oklahoma has several naturally good locations from a climatic standpoint; we have some fairly high elevations and in some sections of the state sunshine is constant enough to be an item of value when one is considering the selection of a site for a tubercular home.

THE UNIVERSITY MEDICAL SCHOOL.

The Medical Department of the State University opened its hospital in Oklahoma City December 17th. It has a capacity of 64 beds, private rooms with bath, pay and free wards for both white and colored patients and is under the sole control of the faculty of the Medical School.

The hospital will maintain a lying-in ward to which patients will be admitted one month before delivery without cost and the profession is requested to refer to this department their obstetric cases having no home or proper place for confinement.

THE LEAGUE FOR MEDICAL FREEDOM IN OKLAHOMA.

As the medical profession understands the aims of the Owen bill it would seem improbable that in the Capital of the State the League of Medical Freedom should raise its head and attempt to mold public opinion in the home of Senator Owen; yet this is exactly what is going on and we are doing nothing to counteract the tissue of misstatement and misrepresentation they are scattering broadcast over the State.

As a profession bound by the traditions and conventionalities of the past we are hardly in a position to appeal to the public directly in the matter, at least such action is usually repugnant to the average medical man, but the provocation demands that we take some action to counteract the vicious propaganda being circulated from the headquarters of this organization in the Colcord Building, Oklahoma City.

No statement is too brazen, too devoid of foundation in fact or untenable from a scientific standpoint for this organization to make use of in the campaign of misinformation it is now purveying to the people under the guise of protecting the liberties of the people; they invade the home with their statements and these statements are going unchallenged, we should do something on our part to inform the people, for, untruth is very like vice, first scorned, then if forced on us, endured, and finally if constantly placed before us becomes fact instead of untruth.

XUM

BOOK REVIEWS.

Goepp's State Board Questions and Answers, by R. Max Goepp, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Second edition revised. Octavo volume of 715 pages. Philadelphia and London. W. B. Saunders Company, 1911. Cloth, $4.00 net; half morocco, $5.50 net.

This edition incorporates the questions asked by state boards during the last three years, the first edition covering the period of four years previous. The author has interpolated questions of his own at various places to maintain the continuity of the text. Many questions asked at final examinations in medical schools and by the examiners for hospital appointments are incorporated. The majority of new questions are those on serum and vaccine therapy; serum diagnosis and treatment of syphilis; chemotherapy in general; diseases due to intestinal parasites; tropical disorders; the new heart physiology; the myogenic theory, and graphic methods of study of the circulation. The book cannot fail to be of greatest service to anyone approaching a state board examination, for the state boards place upon the various branches of medicine and gleans many of the questins are repeated over and over again every year. The candidate learns the relative importance much concerning the cusotmary style of presentation.

Diagnostic and Therapeutic Technic. Diagnostic and Therapeutic Technic. By Albert S. Morrow, M. D., Adjunct Professor of Surgery, New York Polyclinic. Octavo of 850 pages, with 815 original line drawings; 1911. Cloth, $5.00 net. W. B. Saunders Company, Philadelphia and London.

This is one of the good books of the year and deserves a kind reception from the medical profession.

The author starts out with anesthetics, local and general and handles the subjects in an intelligent and comprehensive manner, the text is illustrated and most of the illustrations are original. The chapters on local and regional anesthesia are worthy of study.

The chapters dealing with the diagnosis of bladder, urethral and prostatic conditions are most excellent. The work throughout attempts to discard the unnecessary and unusual and adheres very closely to the practical needs of the physician. In this respect the work will be found especially useful to those in the profession doing surgical and semi-surgical work; the suggestions and advice is especially applicable to the different surgical procedures and a study of its teachings will reward the student to an unlimited extent.

Each step in the diagnosis of the different conditions considered is detailed carefully and nothing is left to the readers imagination; this feature alone distinguishes the work and makes it available and valuable to the surgeon as well as to the general practitioner.

OPHTHALMIC MYOLOGY.

A Systematic Treatise on the Ocular Muscles by G. C. Savage, M. D.,

Professor of Ophthalmology (Defects in the Eye) in the Medical Department of Vanderbilt University, author of "New Truths in Ophthalmology," and "Ophthalmic Neuromyology," Ex-President of the Nashville Academy of Medicine, Ex-President of the Tennsesee State Medical Association, Ex-President of the Southern Medical Association. Eighty-four Illustrative Cuts and Plates. Second Edition. Cloth, 685 pages, price, $4.00 net. Published by the author, 137 Eighth Avenue, North Nashville, Tenn. Printed by the McQuiddy Publishing Company, Nashville, Tenn., 1911.

INTERNATION CLINICS, VOLUME IV, TWENTY-FIRST SERIES.

Edited by Henry W. Cattell, A. M., M. D., with the collaboration of many eminent American and European authorities. Cloth, $2.00 net. Philadelphia and London. J. B. Lippincott Company, 1911.

This volume completes the series for the year 1911 or the Twenty-first Series. It is fully in keeping with the high class of its predecessors both in the variety and excellence of its varied productions.

Among the articles noted is one on The Modern Treatment of Syphilis, Modern Instruments of Precision in the Treatment of Cardiovascular Disease, Legal Facts a Physician Should Know in Surgical Cases. These articles are especially instructive, the first two being illustrated. Throughout the book contains a wide and useful class of contributions to recent medical subjects.

A DISTINCTIVE PIECE OF LITERATURE.

"Here is something different." This is apt to be the first thought of the physician upon breaking the wrapper of Parke, Davis & Co.'s new brochure on bacterial vaccines and tuberculins. And the external appearance of the book is in no wise misleading. The "difference" applies to the printed page as well as to the handsome cover in artistically blended browns and gold. The brochure contains forty-eight pages in addition to the cover and thirteen full-page engravings in colors.

The work is divided into three parts or sections. Some of the subjects considered in the first section are: "What is the Difference Between Bacterial Vaccines (Bacterins), Serums and Toxins?" "How are Bacterial Vaccines Prepared?" "Therapeutic Action of Bacterial Vaccines;" "When Should Serums be Used, and When Bacterial Vaccines?" The section treats of the origin and nature of the basterins, the relative merits of "tsock" and "autogenous" vaccines, the opsonic index, and the best method of using the bacterins, together with a description of each vaccine, including references to preparation, therapeutics and dose. The third section is devoted to a con-

sideration of the tuberculins, with dilution and dose tables, descriptions and illustrations of the various diagnostic tests, etc.

Briefly stated, the booklet is a concise review of the essential facts relating to bacterial-vaccine therapy, containing precisely what the seeker after this kind of information wants. It is not padded with clinical reports—in fact, it contains none. We understand that Parke, Davis & Co. will be pleased to send a copy of this unique and valuable brochure to any physician requesting it. Address them at their home offices, Detroit, Mich., specifying the "new booklet on bacterial vaccines," and mention this journal.